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Arnold et al.

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(54)	BORE RI	DER SWITCH
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Field of Search 200/52 R, 81.9 R, 200/545, 61.42; 114/20.1, 23; 102/262-264, 420; 89/1.1

References Cited (56)

U.S. PATENT DOCUMENTS

1,897,863 * 2/1933 Ruhlemann 200/61.42

2,428,565	*	10/1947	Guidosh 200/81.9 R
2,589,547	*	3/1952	Hughes et al
2.787.957	*	4/1957	Dippel 114/20.1 X
3.004.506	*	10/1961	Cooke et al 114/20.1
3 618 066	*	11/1971	Brammont 200/61.42 X
3 710 048	*	1/1973	Schumacher 200/52 R
4,394,556	*	7/1983	Gould 200/545

* cited by examiner

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ABSTRACT

A safety switch is provided to detect when a tube launched which exits the tube. The switch is located within the vehicle having a switch plunger extending to the periphery of the vehicle. The plunger is biased to provide outward pressure against a lever on the exterior of the vehicle. The lever rides within the bore of the launch tube such that, when the vehicle is within the launch tube, the lever contacts the interior bore of the tube. The lever contacting the tube bore prevents the plunger from extending to activate the switch. When the vehicle exits the tube, the lever is free to rotate away from the vehicle allowing the plunger to extend and activate the switch which may be a single or multi-pole switch.

13 Claims, 2 Drawing Sheets

